

# LENGTH OF WESTERN TENT CATERPILLAR EGG MASSES AND DIAMETER OF THEIR ASSOCIATED STEMS

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**ABSTRACT.**—Stems bearing egg masses of the western tent caterpillar (*Malacosoma californicum*), collected in Arizona and northern New Mexico during 1977–1980, had mean diameters between 2.9 and 4 mm. Mean lengths of the egg masses were consistently between 11 and 14 mm.

High populations of the western tent caterpillar, *Malacosoma californicum* (Packard) (Lepidoptera: Lasiocampidae), defoliated substantial areas of trembling aspen, *Populus tremuloides* Michx., in northern New Mexico and southern Colorado in recent years. Larvae were a general nuisance to forest users, not only completely defoliating trees but also causing slick spots on New Mexico highways when cars crushed large numbers of them.

To satisfy inquiries regarding the duration of the infestations, egg masses were collected at various locations to determine population

trends. Although some egg masses were collected on the Kaibab National Forest in Arizona, most were collected from permanent five-tree sample plots on the Sante Fe National Forest in northern New Mexico during 1978–1980. Branches were pruned from lower crowns of trees from 10 to 17 m tall. Egg-mass-bearing twigs were clipped from these branches after the counts were made for population trend predictions and then shipped to Fort Collins, Colorado, where egg mass length and diameter of the associated stem were measured.

TABLE 1. Mean lengths of western tent caterpillar egg masses and diameters of associated stems.

| Location <sup>1</sup>     | Collection date             | Number of egg masses | Length of egg masses (mm) |       | Stem diameter (mm) |       |
|---------------------------|-----------------------------|----------------------|---------------------------|-------|--------------------|-------|
|                           |                             |                      | $\bar{X}$                 | range | $\bar{X}$          | range |
| Kaibab N.F., Arizona      |                             |                      |                           |       |                    |       |
| Jacob Lake                | 31 October 1977             | 44                   | 11.0                      | 8–15  |                    |       |
| Santa Fe N.F., New Mexico |                             |                      |                           |       |                    |       |
| Espanola                  | 25 September–5 October 1978 | 491                  | 12.3                      | 6–33  | 3.4                | 1–14  |
| Tesuque                   | "                           | 274                  | 13.4                      | 6–29  | 3.9                | 1–11  |
| Jemez                     | "                           | 78                   | 13.6                      | 8–19  | 3.4                | 1–8   |
| Coyote                    | "                           | 92                   | 13.6                      | 9–26  | 3.4                | 1–5   |
| Santa Fe N.F., New Mexico |                             |                      |                           |       |                    |       |
| Espanola                  | 11–24 September 1979        | 157                  | 12.8                      | 7–18  | 3.5                | 1–10  |
| Tesuque                   | "                           | 29                   | 14.2                      | 9–20  | 4.0                | 2–10  |
| Jemez                     | "                           | 28                   | 13.7                      | 9–17  | 3.0                | 2–6   |
| Coyote                    | "                           | 2                    | 11.0                      | 10–12 | 3.0                | 3.0   |
| Santa Fe N.F., New Mexico |                             |                      |                           |       |                    |       |
| Espanola                  | 20, 28 October 1980         | 137                  | 12.2                      | 5–18  | 3.1                | 1–8   |
| Tesuque                   | 28, 29 October 1980         | 103                  | 13.4                      | 8–18  | 2.9                | 1–6   |
| Jemez                     | 29 October 1980             | 28                   | 12.8                      | 10–16 | 3.0                | 2–4   |
| Coyote                    | 21, 27 October 1980         | 160                  | 11.8                      | 7–16  | 3.2                | 2–8   |

<sup>1</sup>Collections were made on U.S. Forest Service lands near locations shown.

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Tent caterpillar egg masses varied from 6 to 33 mm in length; mean length was consistently between 11 and 14 mm (Table 1), which indicated egg mass length did not change significantly during sample years.

Mean diameter of the associated stem varied from 2.9 to 4 mm (Table 1). The diameters ranged from 1 to 14 mm, but the majority of stems were between 2 and 5 mm. This has practical significance for sampling western tent caterpillar egg masses. Because 96 percent of the egg masses were found on stems 6 mm or smaller in diameter, there is

little need to examine stems of larger diameter. Furthermore, in another study, of the 88 egg masses found on branches throughout the crowns of 12 trees, 93 percent were attached 30 cm or less from the tip of the branchlet. Thus, examination of the stems of branchlets more than 30 cm long will not yield significantly greater numbers of egg masses. If the distribution of egg masses in the crowns of aspen can be determined, then it, plus the stem diameter and distance from the tip, can be integrated to produce a sampling scheme.